

GORSHKOV, A.A., doktor tekhn.nauk; SIDORENKO, R.A., inzh.

Effect of sulfur on graphite formation in cobalt-carbon alloys
and types of iron-carbon alloys. Izv.vys.ucheb.zav. chern.met.
no.8:39-43 Ag '58. (MIRA 11:11)

1. AN USSR i Ural'skiy politekhnicheskiy institut. 2. Chlen-
korrespondent AN USSR (for Gorshkov).
(Cobalt alloys--Metallography) (Iron alloys--Metallography)
(Sulfur)

SOV/128-58-11-1/24

AUTHORS: ~~Gorshkov, A.A.~~, Toropov, A.I., Voloshchenko, M.V. and Prozhoga, K.K.

TITLE: Magnesium Cast Iron Crankshafts for Diesel Tractor Engines
(Kolenchatyye valy dlya dizel'nykh traktornykh dvigateley iz magniyevogo chuguna)

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 11, pp 1-3 (USSR)

ABSTRACT: Information is presented on experience in the production of magnesium cast-iron crankshafts at the Khar'kov Tractor Plant and the "Serp i molot" Plant, with the participation of Academician A.A. Vasilenko, engineers L.L. Yurovskiy, T.M. Belov, S.V. Timchenko, B.K. Krymov, I.K. Udovikov, A.P. Mel'nikov, A.G. Sherman, I.G. Neizhko, Candidates of Technical Sciences I.S. Grigor'yev, N.B. Gel'perin and other workers of the "Serp i molot" Plant and the Institut mashinovedeniya (Institute of Mechanical Engineering) AS UkrSSR and NII Traktorosei'mash. Good results were obtained in the experiments and the wear-resisting properties of the cast crankshafts proved to be 30 to 40 % higher than those of forged steel shafts. In developing the casting technology special attention was de-

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Magnesium Cast Iron Crankshafts for Diesel Tractor Engines

voted to the double modification process obtained by separate subsequent addition of ferrosilicon in a certain time interval after the addition of magnesium. It was stated that positive results of the double modification process depend on the composition of the initial cast iron. According to technical conditions, the structure of cast crankshafts for diesel engines must consist of laminated perlite with different dispersion, globular graphite and up to 25 % ferrite. It was stated that the ferrosilicon content must be increased up to 0.55 %. The casting was carried out on a special conveyor. After machining, the cast shafts were subjected to tests on gamma flaw-detectors with radioactive cobalt radiation and on magnetic flaw-detectors. There are 4 photos, 2 diagrams, 1 graph and 3 references, 2 of which are Soviet and 1 English.

1. Crankshafts--Production
2. Iron-magnesium castings--Applications
3. Crankshafts--Mechanical properties
4. Crankshafts---Inspection

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BRAUN, Mikhail Petrovich; VINOKUR, Bertol'd Bentionovich; KONDRASHEV, Arkadiy Ivanovich; MAYSTREKO, Yekaterina Yevdokimovna; GORSHKOV, A.A., otv.red.; RYBCHENIK, T.K., red.; BUNII, R.A., tekhn.red.

[Mechanical properties, heat resistance and heat treatment of alloyed steel] Mekhanicheskie svoistva, teploustoichivost' i termicheskaya obrabotka legirovannoi stali. Kiev, Izd-vo Akad. nauk USSR, 1959. 190 p. (MIRA 13:4)

1. Chlen-korrespondent AN USSR (for Gorshkov).
(Steel) (Heat-resistant alloys)

GORSHKOV, A.A.

18(5)

p. 1, 2, 4, 5, 6

PHASE I BOOK EXPLOITATION

SOV/2048

Sverdlovsk. Ural'skiy politekhnicheskii institut imeni S.M. Kirova

Teoriya i praktika liteynogo proizvodstva (Theory and Practice in the Foundry Industry) Moscow, Mashgiz, 1959. 231 p. and 32 p. (Series: Its: [Sbornik] vyp. 89) Errata slip inserted. 5,000 copies printed.

Ed.: A.A. Gorshkov, Corresponding Member, USSR Academy of Sciences, Doctor of Technical Sciences, Professor; Tech. Ed.: N.A. Dugina; Exec. Ed. (Ural-Siberian Division, Mashgiz): A.V. Kaletina, Engineer.

PURPOSE: This book is intended for engineering and scientific workers of institutes and machine-building plants, as well as for students of advanced courses at vuzes.

COVERAGE: This collection consists of articles dealing with practical problems in foundry processes. The articles review the achievements of Ural foundry workers in the past 40 years and present

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aspects of a current study on the casting of nodular cast iron, its properties and casting methods. A description is given of artistic and architectural casting. Consideration is given to the problem of combatting gases in steel and aluminum. The structure of cast steel is discussed. A recent investigation of vacuum casting including its characteristic properties and new applications is also presented. There are 32 pages of photographs illustrations at the end of the book. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS:

Gorshkov, A.A. [Corresponding Member, Academy of Sciences, UkrSSR, Professor, Doctor of Technical Sciences]. Theoretical and Practical Achievements in the Ural Foundry Industry During 40 Years of the Soviet Regime

3

The author gives a historical review of the foundry industry in the Ural region for the period from 1912 to the present. He describes the advanced methods now in use and compares them with the methods used before World War I. He illustrates with the aid of statistics the progress achieved.

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PART 1. GENERAL PROBLEMS IN CASTING

Dubitskiy, G.M. [Candidate of Technical Sciences]. Investigating Processes Occuring in the Multiple Level Gate System During Pouring 19

Dubitskiy, G.M. Investigating the Action of the Multiple Level Gate System During Submerged Inflow of Metal 28

In this article and the preceding one the author discusses the results of a laboratory-scale investigation to determine the hydraulic lows and the characteristics of the multiple level gate system.

Zharov, N.T. [Candidate of Technical Sciences], Yu.P. Poruchikov [Candidate of Technical Sciences], and V.F. Simonov [Engineer]. Making Shell Molds From Mixes With a Water Glass Base 39

The authors briefly review thermosetting materials used as binders in mold making and makes a parallel comparison with water glass used for the same purpose. They stress the technical and economical advantages of the latter. Also given are

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the composition of water glass binders, favorable acting additives, and methods of application.

PART 2. IRON CASTINGS

Goftman, M.V. [Doctor of Technical Sciences], and P.Ya. Nefedov [Engineer]. Production of a Special Coke Briquet Fuel for Cupola Furnaces 46

The author discusses the disadvantages and economic losses resulting from the use of blast-furnace and other low-quality cike in cupola blast. The goal of the investigation involved is to develop a new method of producing improved cupola coke with a porosity not higher than 20 to 25 percent, a low re-actionability, and a given, uniform mesh size. Laboratory investigations by the author confirm the possibility of producing such coke from available materials.

Gorshkov, A.A., and Yu.P. Poruchikov. Cupola Slags 60
The authors describe the complex role of cupola slags in controlling the chemical composition of the iron, preventing saturation of the iron with gases from the furnace atmosphere, dissolving non-metallic inclusions, and controlling lining life.

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They give the optimum composition of slag required for a furnace with fire clay lining in order to insure a proper operation of the cupola and to produce a high-quality iron.

Bogachev, I.N. [Doctor of Technical Sciences], and R.I. Mints [Engineer]. Cavitation Erosion of Gray Iron

71

The authors investigate, supposedly for the first time, the form, composition, and heat treatment of graphite in gray cast iron, as factors influencing the cavitation-erosion resistance. The authors came to the following conclusions: 1) the resistance to cavitation and erosion of gray cast iron is determined primarily by the form of graphite--nodular cast iron has a significantly higher resistance than lamellar graphite cast iron; and 2) the hardness of cast iron does not influence the resistance to cavitation-erosion.

Sidorenko, R.A. [Engineer], and A.A. Gorshkov. Distribution of Sulfur in Cast Iron Before and After Treatment With Magnesium

79

The authors point out that in cast iron with lamellar graphite

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the dendrite lines are free of sulfur, and that in nodular cast iron the sulfur is distributed along the dendrite lines.

Gorshkov, A.A., and Ch'en, Hsi-Shen [Engineer]. Formation of Spheroidal Graphite During the Primary Crystallization of Cast Iron

85

On the basis of available experimental data the authors attempt to determine the mechanism of formation of spheroidal graphite and to show that it is formed in microscopic gas bubbles, the growth of which proceeds from the periphery to the center. The authors conclude that it is apparent that only bubbles with adsorbed carbon atoms on their surface are able to produce nodular graphite. Argon, nitrogen, and other neutral gas atoms do not adsorb the carbon atom, and thus, are not producers of nodular graphite. However, the formation of nodular graphite is possible in cast iron with a very low manganese and sulfur content. Blowing through methane also gives positive results with respect to the formation of nodular graphite.

Miklúkhin, D.Ye. [Engineer]. Manufacture of Bimetal Rolls With an Intermediate Zone

95

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The author describes a method of introducing ferrosilicon during the casting of rolls. Its advantages compared to the usual method are given in respect to scaling off of the roll's upper layer.

Chernobrovkin, V.P. [Candidate of Technical Sciences]. On Graphite Formation and Other Phenomena Taking Place During Solidification of Mottled Magnesium Cast Iron Poured Into a Green-sand Mold 99

The processes of crystallization and graphite formation in castings were investigated. It was concluded that formation of graphite is more favorable when magnesium is introduced at a low temperature. It was further concluded that during crystallization of mottled magnesium cast iron the graphite nuclei form in the liquid phase but their growth in outer layers of the casting continues to a considerable degree in the solid phase, where as in the central zone of the casting the formation of nuclei and the growth of graphite inclusions take place in the liquid phase during solidification.

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Pisarenko, G.A., and S.G. Guterman [Candidates of Technical Sciences],
Ya.I. Ayzikovich, and P.D. Yelokhov [Engineers]. Effect of Certain
Factors on the Mechanical Properties and the Structure of Magnesium
Cast Iron for Molds. 107

The authors discuss the effect of manganese with higher phosphorus content, and the effect of phosphorus at a higher manganese content, the effect of modification with ferrosilicon, the distribution of phosphorus in relation to the moldings cross section determined by the method of radioactive isotopes, and molds with higher phosphorus content in magnesium cast iron.

Chernobrovkin, V.P. [Candidate of Mechanical Sciences]. Radial
Shrinkage of Cast Iron Rolls 117

The author presents a method for investigating radial shrinkage of cast iron rolls and gives the results obtained.

Smirnov, V.I. [Corresponding Member of Academy of Construction and
Architecture of the SSSR, Architect]. Artistic Cast Iron Produced
by Ural Founders 121

The paper is a historical review of artistic casting.

Smirnov, V.I. [Corresponding Member of Academy of Construction and
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Architecture of the SSSR, Architect]. Artistic Cast Iron Produced
by Founders of the Kaslinsky Zavod (Kasli Iron Works) 126
The author describes artistic articles cast by the Kasli founders
in the 19th century and beginning of the 20th century.

PART 3. STEEL CASTINGS

Los'kov, D.I., and G.L. Khazan [Engineers]. Sand Pickup on Castings
as a Result of Penetration of Steel Into the Mold Material 131

The article deals with sand pickup on a laboratory, and industrial scale. The effect of the sand grain size, temperature of pouring and method of pouring are discussed.

Butakov, D.K. [Candidate of Technical Sciences]. Structure and
Fracture of Cast Steel 140

The author presents a surveys material on the structure of cast steel as observed in macroscopic investigation. Fracture of cast steel, fracture in heated condition, and fracture following heat treatment are also reviewed.

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Butakov, D.K. [Candidate of Technical Sciences]. Investigating Causes of Brittle Fracture of Castings 151

The author investigates the causes of brittle fracture of steel melted in an induction furnace with acid crucible, and the conclusion was reached that the deposit of the nonmetallic phase containing sulfides along the primary austenite grain lines, controlled by manganese, aluminum, and oxygen is the main cause of the brittleness of steel.

Filippov, A.S. [Candidate of Technical Sciences], and G.F. Saltanov [Engineer]. Hot-tops, Heated With Exothermic Mixtures 154

The authors describe the development of Soviet exothermic castings compounds giving composition and results obtained in the foundry.

Popel', S.I. Wetting Refractories With Molten Metal and Slag 162

The purpose of this study was to investigate the effect of carbon, manganese, silicon, sulfur, and phosphorus dissolved in iron on the wetting of magnesia and other materials by the iron and to determine the magnitude of the contact angles formed by liquid slags on various surfaces. The method and results of the investigation are described. It is concluded that the magnitude

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of contact angle formed by the drop of commercially pure iron on magnesite surface is 115-120° and the angle formed by CaO-SiO₂-Al₂O₃ and CaO-SiO₂-MgO slags varies slightly with composition and at the temperature of 1400-1750°C is equal to 112-125°. It is concluded that carbon, manganese, silicon, sulfur and phosphorus dissolved in iron improve the wetting of magnesia by iron.

Popel', S.I. [Candidate of Technical Sciences]. Effect of Steel Surface Properties and Degree of Oxidation on Burn-on of Mold-Composition to Castings 173

The author describes the processes of penetration of smelt into a capillary-porous body and its velocity, and the adhesion of low-carbon steel with the oxide fusion.

Korotkov, V.G. [Candidate of Mechanical Sciences]. Calculating Basic Parameters in Degasification of Aluminum Alloys Using Direct Current 188

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The author presents the results of an investigation giving optimum condition for degasification processes, i.e., temperature, amperage, and time.

Korotkov, V.G. [Candidate of Mechanical Sciences], and Zh.V. Tokarev [Engineer]. Determination of Optimum Conditions for Chlorination of Aluminum Alloys 196

The author gives detailed data on chlorination obtained from an experimental investigation of AL2 aluminum alloy.

Vargin, S.V. [Candidate of Technical Sciences]. Degasification of Aluminum Alloys by Chlorination 205

The author presents the results of experimental investigations on degasification indicating optimum regimes for this process.

Vargin, S.V. [Candidate of Technical Sciences]. On the Amount of Gases in Porous Aluminum Castings 210

The author investigates the causes of porosity in cast aluminum and describes the method used in the investigation.

Ksenofontov, B.M. [Candidate of Technical Sciences]. Casting

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Copper Alloy Ingots by the Vacuum Method

213

The author describes in detail the construction of apparatus and machinery used for casting and crystallization of copper alloys including brass rods, tubing and bolts of a relatively small cross section and length--up to 1200 x 100 to 120 mm. He gives the methods of operation and recommendations for obtaining satisfactory results, especially by a proper manipulation of crystallizers.

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GO/bg
8-14-59

MINAYEV, Anatoliy Nikolayevich, kand.tekhn.nauk; SHIPILIN, Boris Il'ich, inzh.; TELEGIN, A.S., kand.tekhn.nauk; LEVCHENKO, P.V., kand.tekhn.nauk; SOKOLOV, K.N., kand.tekhn.nauk; SHAVEL'ZON, M.V., inzhener; MINAYEV, A.N., kand.tekhn.nauk; YAROSHENKO, Yu.G., kand.tekhn.nauk; GORSHKOV, A.A., doktor tekhn.nauk, retsenzent; DOBITSKIY, G.M., kand.tekhn.nauk, obshchiy red.; BUTAKOV, D.K., kand.tekhn.nauk, red.; KSENOFONTOV, B.M., kand.tekhn.nauk, red.; PORUCHIKOV, Yu.P., kand.tekhn.nauk, red.; DUGINA, N.A., tekhn.red.

[Cupola furnaces and drying chambers] Liteinye pechi i suшила.
Moskva, Gos.nauchno-tekhn.isd-ve mashinostroit.lit-ry, 1959.
472 p. (MIRA 12:6)

1. Kafedra liteynogo proizvodstva Ural'skogo politekhnicheskogo instituta (for Gorshkov, Telegin). 2. Chlen-korrespondent AN USSR (for Gorshkov).

(Foundry machinery and supplies)

~~GORSHKOV, A.A.~~; MARKHASEV, B.I.

Using Ukrainian bentonites in founding. Bent.gliny Ukr.
no.3:73-88 '59. (MIRA 12:12)

1. Institut mashinovedeniya AN USSR.
(Ukraine--Bentonite) (Founding)

GORSHKOV, A.A., prof., doktor tekhn.nauk

Achievements in foundry theory and practice in the Urals
during 40 years of the Soviet government. Trudy Ural.politekh.
inst. no.89:3-18 '59. (MIRA 12:8)

1. Chlen-korrespondent AN USSR.
(Ural Mountain region--Founding) (Foundry research)

~~GORSHKOV, A.A.~~ doktor tekhn.nauk; PORUCHIKOV, Yu.P., kand.tekhn.nauk

Cupola slags. Trudy Ural.politekh.inst. no.89:60-70 '59.
(MIRA 12:8)

(Cupola furnaces)

(Slag)

SIDORENKO, R.A., inzh.; ~~GORSHKOV~~, A.A., doktor tekhn.nauk

Sulfur distribution in cast iron before and after magnesium
treatment. Trudy Ural.politekh.inst. no.89:79-84 '59.

(MIRA 12:8)

(Cast iron--Metallography) (Sulfur) (Magnesium)

GORSHKOV, A.A., doktor tekhn.nauk; CHEN' SI-SHEN' [Cheng Hsi-shen], inzh.

Spheroidal graphite formation during the primary crystallization
of cast iron. Trudy Ural.politekh.inst. no.89:85-95 '59.

(MIRA 12:8)

(Cast iron--Metallography) (Crystallization)

IVANOV, N.Kh.; KALININ, B.S.; LUR'YE, D.A.; LEVONTIN, L.I.; MIROSHNI-
CHENKO, G.K.; SHMYGUL', B.P.; SHERLAIMOV, M.N.; GORSHKOV, A.A.,
prof., doktor tekhn.nauk, retsenzent; ORLEANSKIY, Ya.P., red.;
SOROKA, M.S., red.

[Automatic unit for the production of CO₂. Collected working
drawings] Avtomaticheskaya ustanovka dlya proizvodstva CO₂;
sbornik rabochikh chertezhei. Moskva, Gos.nauchno-tekhn.isd-vo
mashinostroit.lit-ry, 1960. 8 p. (MIRA 13:8)

1. Chlen-korrespondent AN USSR (for Gorshkov).
(Carbon dioxide) (Mechanical drawing)

GORSHKOV, A.A. [Gorshkov, A.A.]; CHEN SI-SHEN' [Chen Hsi-shên]

Critical remarks on modern theories of nodular graphite formation during the primary crystallization of cast iron. Nauk. pratsi Inst. lyv. vyrob. AN URSR 8:5-27 '59. (MIRA 14:1)
(Cast iron--Metallurgy)

GORSHKOV, A.A. [Horshkov, A.A.]; SIDORENKO, R.A. [Sydorenko, R.A.]

Effect of sulfur on graphite formation in nickel-carbon alloys.
Nauk. pratsi Inst. lyv. vyrob. AN URSR 8:42-56 '59.

(MIRA 14:1)

(Nickel alloys—Metallography) (Sulfur)

GORSHKOV, A.A.

PHASE 1 BOOK EXPLOITATION 20V/2293

Kauchno-tekhnicheskaya konferentsiya po razvitiyu proizvoditel'nykh sil Khar'kovskogo ekonomicheskogo administrativnogo rayona, 1978.

Voprosy mashinostroyeniya; trade konferentsiya... (Problems of Machine Building; Transactions of the Scientific Technological Conference on the Development of Productive Forces of the Khar'kov Economic Administrative Region) no. 3. Kiev, 1st-vo AN UkrSSR, 1960. 182 p. 1,400 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainy SSR. Sovet po izucheniyu proizvoditel'nykh sil UkrSSR.

Editorial Board: Resp. Ed.: A.A. Vasilenko, Academician of the Academy of Sciences UkrSSR; A.A. Gorshkov, Corresponding Member, Academy of Sciences UkrSSR; I.M. Perel'muter, Doctor of Technical Sciences; S.M. Kutsenko; A.I. Adamenko, Candidate of Technical Sciences; G.M. Davydov, Candidate of Economic Sciences; Ed. of Publishing House: S.D. Lepity; Tech. Ed.: R.A. Buniy.

PURPOSE: This collection of articles is intended for scientific personnel, engineers, technicians, servantholder workers, and planning organizations.

COVERAGE: The articles deal with problems in technology and techniques in the manufacture of engines, hydraulic turbines, diesel locomotives, tractors, combines, electrical machinery, etc. Considerable attention is given to the following: the development of various types of equipment used for automation in the coal industry; equipment development for the production and use of rectifiers; the development of new accessories for measuring and controlling heat-engineering parameters; and the introduction of advanced methods into founding and die forming. No personalities are mentioned. References accompany some of the articles. There are 20 references: 16 Soviet, 2 German, 1 French, and 1 English.

Glasolov, M.M. [Doctor of Technical Sciences at Khar'kov Polytechnical Institute]. The Present State of and Outlook for the Development of Engine Building 44

Koval', I.A. [Chief Designer at the GSKED (Gosudarstvennoye Spetsial'noye Konstruktorskoye Byuro Dvigatelya - State Special Design Bureau) in the "Serp i Molot" Plant]. Work Done by the "Serp i Molot" Plant in Khar'kov and by Its GSKED in the Design of New Tractor and Combine Engines 61

Kashuba, B.P. [Chief Designer at the Khar'kovskiy traktorny zavod (Khar'kov Tractor Plant)]. The All-Purpose T-75 Caterpillar Tractor 68

Garf, M.E., and O.Yu. Krasenko [Candidates of Technical Sciences at the Institut lit'yego proizvodstva AN UkrSSR, Institute of Founding AS UkrSSR]. Investigating the Dynamic Strength of Certain Constructions in the Tractor and Transportation Industries 75

Postalov, I.M. [Doctor of Technical Sciences at the Institut elektrotekhniki AN UkrSSR, (Electrotechnical Institute AS UkrSSR)]. Basic Prospects for Research in the Field of Design of New Types of Electric Machinery 87

Perel'muter, M.M. [Candidate of Technical Sciences at the Khar'kov Branch of "Tsykhromalektroproyekt"]. Prospects for the Development of Electric Drives 92

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Sorochenko, V.Ye. [Chief Equipment Designer at the Khar'kovskiy elektromekhanicheskii zavod (Khar'kov Electromechanical Plant)]. Trends in the Development of Electrical-Apparatus Manufacture at the Khar'kov Electromechanical Plant 99

Yanchuk, G.M. [Candidate of Technical Sciences at Zavod "Krasnyy Metallist" (The Krasny Metallist Plant)]. Equipment for Automation in Coal Mining 105

Opan'yan, Ya.P. [Engineer at the Khar'kov Branch of "Tsykhromalektroproyekt"]. The Use of Mechanical Rectifiers in Electrolytic Processes 115

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GORSHKOV, A.A., otv. red.; TSIZIN, B.B., inzh., red.; NOVIKOV, F.A., inzh., red.; REMENNIK, T.K., red. izd-va; KADASHEVICH, O.A., tekhn. red.

[Hot working of metals; transactions of the Scientific-Technical Conference on the Development of the Production Forces of the Kiev Economic Region] Goriachaya obrabotka metallov; trudy nauchno-tekhnicheskoi konferentsii po voprosam razvitiia proizvoditel'nykh sil Kievskogo ekonomicheskogo raiona. Kiev, Izd-vo Akad. nauk USSR. No.2. 1960. 142 p. (MIRA 14:7)

1. Nauchno-tekhnicheskaya konferentsiya po voprosam razvitiya proizvoditel'nykh sil Kiyevskogo ekonomicheskogo rayona. 2. Chlen-korrespondent AN USSR, Institut liteynogo proizvodstva AN USSR (for Gorshkov).
(Founding) (Forging) (Rolling (Metalwork)) (Metals--Hardening)

Toprosty teorija litewyŭnch profesorov (Problems of the Theory of Founding Professors) Moscow, 1960. 529 p.
9,500 copies printed.

[illegible]

Bel'skaya, A. A. Rybnikov (head, Department of Founding, Gorkiy Polytechnic Institute), A. Ya. Krivshayev (head, Department of Founding, Dnepropetrovsk Polytechnic Institute), and I. Iribay (head, Department of Founding, Muzhik School of Mining, Orenburg, Chelabinskaya), M. I. Efremov, Bogdan, P. I. Valterskiy, A. S. Zhuravskiy, N. I. Klochev, L. S. Kondratyuk, and Ya. C. Polynovskiy. Managing Ed.: for Literature on Heavy Machine Building: A. Ya. Golovin; Ed. of Publishing House: Ya. T. Petelin; Techn. Editor: A. F. Uteva.

PURPOSE: This book is intended for technical personnel of the founding industry.

COMMENTARY: This book on founding theory is the result of the joint efforts of metallurgical departments of various schools of higher education and scientific research institutes. Theoretical studies and the scientific research in the field of founding are summarized and discussed. This volume (first of a planned series) is devoted to a number of important theoretical problems of founding, dealing with molding, melting, pouring, solidification of casting, in the foundry, and automation. The terminology used in founding is also given. No personalities are mentioned. Each chapter is accompanied by references.

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GORSHKOV, A.A.; MARKHASEV, B.I.

Prospects of using river sand in founding. Lit.proizv. no.2:
2 F '60. (MIRA 13:5)
(Sand, Foundry)

18(0)

AUTHOR:

Gorshkov, A. A., Corresponding
Member of the Academy of Sciences,
UkrSSR

S/030/60/000/01/032/067
B015/B011

TITLE:

International Congress of Founders

PERIODICAL: Vestnik Akademii nauk SSSR, 1960, Nr 1, pp 79-80 (USSR)

ABSTRACT:

The Congress was held in Madrid (Spain) from October 6 to 11, 1959. Such congresses are held every year in member countries of the International Committee of National Technical and Casting Associations. The USSR joined this Committee in 1959. Delegates from 28 countries as well as 2 delegates of the European Committee of the Casting Association and 1 delegate of the United Nations Organization attended both the Congress and the concomitant Assembly of the Spanish Metallurgical Society for Pig-iron and Steel. The lectures dealt with general problems of casting as well as special problems concerning the technology of cast iron and steel casting as well as castings from alloyed nonferrous metals. The author states that the working productivity of Spanish workers is 3 to 5

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International Congress of Founders

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times lower than in the USSR assuming equal mechanization.
The delegates visited the Supreme Council of Scientific Research which embraces over 100 scientific research institutions and societies.

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GORSHKOV, A.A.; SIDORENKO, R.A.

Role of undercooling in the formation of spheroidal graphite.
Izv.vys.ucheb.zav.; chern.mat. no.4:153-158 '60.
(MIRA 13:4)

1. Ural'skiy politekhnicheskii institut.
(Cast iron--Metallography) (Nickel alloys--Metallography)
(Solidification)

AKSENOV, P.N.; BERG, P.P.; GORDASHKOV, N.M.; VEYNIK, A.I.; GORSHKOV, A.A.;
ZHAROV, N.T.; ZHUKOV, A.A.; ZOROKHOVICH, I.Z.; KUMANIN, I.B.;
LEVI, L.I.; LYASS, A.M.; MARIYENBAKH, L.M.; ORLOV, G.M.; PORUCHI-
KOV, Yu.P.; RABINOVICH, B.V.; STOLBOVOY, S.Z.; FREYGL'SON, B.Yu.;
VASILEVSKIY, P.P., red.; KLOCHNEV, N.I., red.; KONSTANTINOV, L.S.,
red.; POLYAKOV, Ya.G., red.; MARKIZ, Yu.L., red. izd-va; UVAROVA,
A.F., tekhn. red.

[Theory of founding processes] Voprosy teorii liteynykh protsessov.
Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1960. 692 p.
(MIRA 13:7)

(Foudning)

S/128/60/000/001/007/007
A133/A127

AUTHOR: Gorshkov, A. A.

TITLE: Institute of Foundry Practice of the AS UkrSSR

PERIODICAL: Liteynoye proizvodstvo, no. 1, 1960, 46-48

TEXT: The author presents a survey on the activities and achievements of the Institute of Foundry Practice of the Academy of Sciences of the Ukrainian SSR. It was established at the end of 1958 and should primarily develop new molding materials and mixtures, modern casting technologies, combined mechanization and automation of casting and other foundry processes and should design new foundry equipment. In addition to the solution of new theoretical and technological problems cooperation with the industry has been intensified, laboratory and design facilities have been expanded, and new departments have been founded. The Department of Molding Materials and Molding Technology completed its investigations of the physico-chemical properties of bentonites found in the Cherkassy deposits. It was found that bentonite molding mixtures could easily be im-

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Institute of Foundry Practice...

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proved by adding small quantities of activator salts to reduce the prime costs of molding mixtures. The Institute has elaborated plans to build a plant for the production of activated bentonite powders near the Cherkassy deposits to meet the demands of the UkrSSR, BSSR and the European part of the RSFSR. Furthermore, investigations are being carried out whether the sands of the Dnepr river may be utilized in the foundry trade, since they contain 98% silicon dioxide and would be 3-4 times cheaper than sands from special quarries. Chalk-like substances, of course, should be removed. Theoretical and technological investigations are being carried on at the Department of Cast Iron Castings to study the production of magnesium cast iron. Special emphasis is put on the conditions under which such metals as magnesium, calcium, cerium or zinc are added to form spheroidal graphite, or under which formation of the same does not occur as quoted by Chen' Si-shen' (Ref. 3: Author's abstract on his dissertation, Kiev 1959) and the author in various publications published at Sverdlovsk in 1959. It has been established that supercooling

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Institute of Foundry Practice...

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of cast iron during the primary phase of crystallization does not account for the formation of spheroidal graphite. The curves of cooling are not dependent of the form of the graphite during the eutectic transformation of cast iron when influenced by magnesium or cerium, but are determined by the formation of structural components of the basic mass of cast iron. It was also proved that blowing of cast iron with C_mH_n hydrocarbons ensures partial formation of spheroidal

graphite in cast iron with rather small sulfurous impurities. This effect is most effective at high cracking temperatures of the hydrocarbons and at an increased m : n ratio. Cast iron with completely spheroidal graphite was achieved with naphthalene ($C_{10}H_8$). In similar studies it was found that during annealing of malleable cast iron spheroidal graphite formation may be achieved by adding just 0.001% S, yielding cast iron with high cold-working properties and high strength. Experiments were conducted to improve the technology of magnesium cast iron fabrication by using a separate modification method to obtain very rugged castings without any heat treatment, in —

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several cases even without relief of the casting stresses. Thereby, the degree of decomposition of austenite is achieved by regulating the dose of ferrosilicon after the addition of magnesium and the cleansing of the slag. Formation of cementite inclosures does not occur. In close cooperation with the Makeyevskiy trubnyy zavod (Makeyevka Tube Plant) the institute developed tubes from cast iron with spheroidal graphite whose strength came close to that of steel. In cooperation with the Khar'kov "Serp i molot" Plant and the NII-Traktorsel'khoz mash Institute a conveyor line was put into operation for the manufacture of crankshafts of the CMA-65(SMD-65) diesel engine. The weight of the raw ingot was reduced from 87 to 49 kg, and that of the crankshaft from 47 to 40 kg (on account of hollow cheeks). Furthermore, an installation was set up to add magnesium under compressed air pressure without using a cup container. The pressure chamber was built to ensure optimum differences between the evaporation temperature of magnesium and the temperature of the liquid cast iron so that the iron melt could absorb the maximum amount

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S7128/60/000/001/007/007
A133/A127

of magnesium. The installation, a semi-automatic type, has been designed to meet the requirements of a program-controlled automated production line process, the scheme of which is shown in Figure 1 (in this case for the introduction of magnesium into FR-60 liquid cast iron). A special filter was used. Investigations on the optimum composition of silicon-magnesium foundry alloy proved that a foundry alloy with 40% magnesium ensures the smoothest reaction while a lower percentage showed inferior results. The Department of Structural Strength is engaged in studies on static strength characteristics of cast iron in relation to the ferrite content in the structure of the basic mass, achieved by the double modification method and heat treatment of plastic state characteristics, and furthermore, in relation to the impact and fatigue strength. By double modification, silicon-alloyed ferrite of high hardness and high strength characteristics is obtained. Certain laws for fatigue and life characteristics have been established, e.g. it was found that in cast iron with ferritic structure under conditions of re-

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A133/A127

peated overload, accumulation of fatigue damage could only be observed in the areas of stresses with high amplitudes ($\sigma > 1.76 \sigma_1$) and small lives ($N < 10^5$). At lower stresses and longer lives, overloads resulted in increased strength. In cast iron with perlitic structure the accumulation of fatigue damage becomes more intensive with smaller amplitudes of overload stresses. Destruction of cast iron specimens with spheroidal graphite under non-stationary and programed load conditions were also studied. The Institute has also developed an original fatigue testing machine for testing of crankshafts made of cast iron, which was exhibited in 1959 at the Soviet Exhibition in New York. It is planned to establish a large laboratory for testing static stress and fatigue stress of actual parts. The friction and wear group of the Institute found that the life of parts made from high-strength cast iron exceeds that of ordinary cast iron by many times, and in some cases even that of steel, as was demonstrated in wear tests of crankshaft parts, piston rings, liners of international combustion engines, etc. in relation to the

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Institute of Foundry Practice...

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A133/A127

working conditions of the engine. In this connection Ye. A. Markovskiy's dissertation (Ref. 16: "Investigation of Anti-friction Properties of High-strength Cast Iron in Sliding Friction", Kiev 1959) has been mentioned. More intensive use of radioactive isotopes in wear tests is planned and a large laboratory is to be established by the wear and friction group. Corrosion resistance of cast iron with spheroidal graphite has been tested in more than 100 different chemical media, including tests under stray current conditions. The Department of Automation and Mechanization of foundry production is working on automation processes of cupola furnaces and electrochemical cleaning of steel and cast iron castings from scale in an alkali bath in a d-c field, especially in cases where the slightest traces of molding sand have to be removed for sake of exacting operational conditions. The establishment of laboratories of the Institute at two big industrial plants proved to be useful and a third one is being set up at the Zavod stankov-avtomatov im. Gor'kogo (Automatic Machine Tool Plant imeni Gor'kiy). Close ties are maintained with plants and enterprises of Kiev. There are 9 figures

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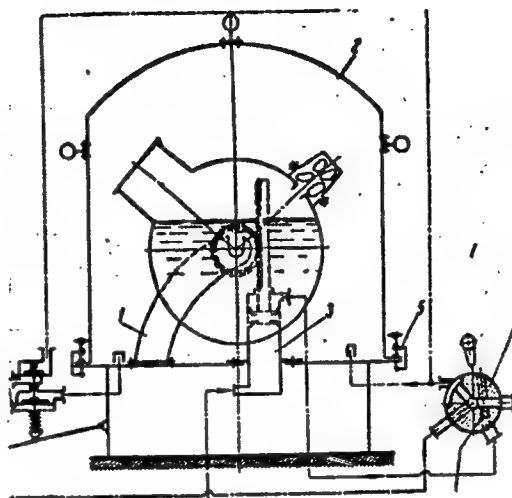
Institute of Foundry Practice...

and 18 Soviet-bloc references.

Legend to Figure 1:

Semiautomatic installation for
introducing magnesium into liquid
cast iron

- (1) Support of the ladle
- (2) Jacket of the autoclave
- (3) Pneumatic rack for tilting
the ladle
- (4) three-shift control tap
for process control
- (5) seal



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GORSHKOV, A.A.

PHASE I BOOK EXPLOITATION

SOV/5789

Nauchno-tekhnicheskaya konferentsiya po razvitiyu proizvoditel'nykh sil Kiyevskogo ekonomicheskogo rayona

Goryachaya obrabotka metallov; trudy konferentsii. vyp. 2. (Hot Working of Metals; Transactions of the Scientific Technological Conference on the Development of the Productive Forces of the Kiyev Economic Region. no. 2) Kiyev, Izd-vo AN UkrSSR, 1960. 142 p. 1000 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Sovet po izucheniyu proizvoditel'nykh sil UkrSSR. Institut liteynogo proizvodstva. Sovet narodnogo khozyaystva Kiyevskogo ekonomicheskogo rayona. Tekhniko-ekonomicheskii sovet.

Editorial Board: Resp. Ed.: A.A. Gorshkov, Corresponding Member, Academy of Sciences UkrSSR, B.B. Tsizin, Engineer, and F.A. Novikov, Engineer; Ed. of Publishing House: T.K. Remennik; Tech. Ed.: O.A. Kadashevich.

PURPOSE: This collection of articles is intended for technical personnel in machine plants and planning organizations, scientific workers, and teachers in technical schools of higher education.

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Hot Working of Metals (Cont.)

SOV/5789

COVERAGE: The book is devoted to problems of the introduction of advanced technology and processing in founding and pressworking. Problems in powder metallurgy are also analyzed. No personalities are mentioned. References accompany some of the articles. There are 56 references, mostly Soviet.

TABLE OF CONTENTS:

Foreword 3

Gorshkov, A.A. [Corresponding Member of the Academy of Sciences UkrSSR; Institute liteynogo proizvodstva AN UkrSSR — Institute of Founding of the Academy of Sciences UkrSSR]. Principal Trends in Improving Foundry Techniques 5

Zharov, N.T. [Candidate of Technical Sciences; Institut avtomatiki Gosplana UkrSSR-Automation Institute of the State Planning Committee of the UkrSSR]. The Present State and Outlook for Automation in Founding 15

Card 2/6

S/128/60/000/003/003/007
A105/A133

AUTHORS: Gorshkov, A. A., and Lysenko, A. F.

TITLE: Electrochemical cleaning of castings from scab and scale

PERIODICAL: Liteynoye proizvodstvo, no. 3, 1960, 9-10

TEXT: This problem already investigated can be solved by chemical treatment of the surfaces to be cleaned. The cleaning process is based on a reaction between the acid oxides in the skin and the basic caustic soda or potassium bath, activated by low-voltage direct current. After the bath, the castings are washed in cold and warm water. The bath consists of electric stove (2), thermometer (1), crucible (3), wire basket (4), pan (5) for sediment removal, switch (6), rheostat (7) and gas rectifier (8). The tests were conducted in the following way: The specimens were placed in wire basket (4), immersed into the electrolyte crucible. Then the direct current was switched on, the basket serving as cathode, the bath as anode. With two-pole switch (6), the direction of current was reversed and the effects of the electrolyte fusion temperature, holding time, and current density were investigated. Good results were achieved with 100% NaOH (320°), 100% KOH (325°), 93% NaOH +

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Electrochemical cleaning of...

S/128/60/000/003/003/007
A105/A133

7% NaCl (283°), 75% NaOH + 25% KOH (325°) electrolytes. The presence of NaCl increases the fluidity of the fusion, activates the electrochemical process on the anode and cathode, and makes it possible to work at lower temperatures; however, the content of NaCl should not exceed 7 - 8%, otherwise the temperature of the electrolyte rises to high. At a temperature of 450 - 500°, any sort of scale was removed. After electrolytic treatment the hot specimens were dipped into cold water. The sudden change of volume of the rest of scale contributed to its removal. The table shows the optimum conditions of the cleaning process with the current connected: casting cathode, bath-anode. Figure 4 shows an alkali bath warmed by radiation steel pipes (5) submerged in the solution and heated by natural gas with the aid of individual injection burners (7). The off-gases are used for the heating of hot water tub (8). Sediment removal and compensation for the loss of alkali is effected in a special vessel (11) with hermetically sealed casing (1) and piping (9) to heat the water by the off-gas. The described system ensures uninterrupted operation of the bath. There are 4 figures and 7 references: 6 non-Soviet-bloc and 1 Soviet-bloc. The references to the English-language publications read as follows: "Engineers Digest", v. 17, no. 21, 1956; "The Engineer", July 6, 1956.

Card 2/4

GORSHKOV, A.A. [Horshkov, A.A.]

New evidence of the origin of granular graphite in microscopic
bubbles during primary crystallization of cast iron. Nauk.
pratsi Inst.lyv.vyrob.AN URSR 9:5-21 '60. (MIRA 15:3)
(Crystallization) (Cast iron—Metallography)

S/137/61/000/011/074/123
A060/A101

AUTHORS: Gorshkov, A.A., Sidorenko, R.A., Chen' Sishen'

TITLE: On the role of super cooling and the form of cooling curves in the formation of spherical graphite

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 31, abstract 11Zh188 ("Nauk. pratsi in-tu livarn. virobnitstva. AN USSR", 1960, 9, 30-40, Ukrainian, Russian and English summaries)

TEXT: A metallographic and thermal investigation of Ni-C alloys without admixtures and with small admixtures of S and Mg was carried out. In the crystallization of these alloys various forms of the graphite may be obtained without introducing spheroidizing elements. At the eutectic transformation no difference is observed in the degree of supercooling. In alloys with spherical graphite the supercooling at primary crystallization occurs in the case when metastable phases are formed. If the appearance of spherical graphite is caused by elements not favoring the formation of these phases, then under the same conditions, no supercooling at crystallization will be observed. In Fe-C alloys the shape of the cooling curve depends on the formation of structural components (austenite-cemen-

Card 1/2

GORSHKOV, A.A. [Gorshkov, A.A.]; POLKIN, M.I. [deceased]; KRASNOGOLOVTSEV,
V.S. [Krasnokolovtsev, V.S.]

New methods of treating liquid cast iron with magnesium. Nauk
pratsi Inst.ly. ryrob.AN URSR 9:92-101 '60. (MIRA 15:3)
(Cast iron--Metallurgy)

S/081/61/000/020/056/089
B102/B147

AUTHORS: Gorshkov, A. A., Denisevich, V. Yu.

TITLE: Chemical stability of cast iron with granular graphite in aggressive media

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 261, abstract 201172 (Nauk. pratsi in-tu livarn. virobnitstva. AN URSR, v. 9, 1960, 108 - 113)

TEXT: Cast iron with granular graphite was subject to long-time tests in various media, and was found to be stable in 1% solutions of alkaline and neutral media and instable in acid media. Cast iron was found to be stable enough in running sea water and under atmospheric conditions due to the protective action of corrosion products. When testing in soil (16% humidity) deep local corrosion was observed. The expediency of replacing pieces of gray cast iron by such of cast iron with granular graphite is pointed out. The latter display great advantages as to their mechanical properties.
[Abstracter's note: Complete translation.]

Card 1/1

GORSHKOV, A. A.

"The Influence of Heating Exchange Between a Liquid Metal and the Casting
Mould on the Structural Peculiarities of Pig-Iron and Steel Castings"

report presented at the 7th Conference on the Interaction of the Casting Mould
and the Casting, sponsored by the Inst. of Mechanical Engineering, Acad. Sci.
USSR, 25-28 January 1961.

GORSHKOV, Andrey Andreyevich, doktor tekhn. nauk, prof.; TSIZIN, Bentsion Borisovich, inzh.; Dubrovskiy, Ye.V., red.; SAVCHENKO, Ye.V., tekhn. red.

[New developments in founding] Novoe v liteinom proizvodstve. Moskva, Izd-vo "Znanie," 1961. 30 p. (Vsesoiuznoe obshchestvo po rasprostraneniю politicheskikh i nauchnykh znaniy. Ser.4, Tekhnika, no.17)
(MIRA 14:11)

1. Chlen-korrespondent AN USSR (for Gorshkov).
(Founding)

GORSHKOV, Andrey Andreyevich, doktor tekhn. nauk; VOLOSHCHENKO, Mikhail Vasil'yevich, kand. tekhn. nauk; DUBROV, Vasiliy Vladimirovich, kand. tekhn. nauk; KRAMARENKO, Oksana Yur'yevna, kand. tekhn. nauk; MIL'MAN, B.S., kand. tekhn. nauk, retsenzent; KLOCHNEV, N.I., kand. tekhn. nauk, retsenzent; TSYPIN, I.O., kand. tekhn. nauk, retsenzent; RIKBERG, D.B., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn. red.

[Handbook on iron founding of high-strength pig iron] Spravochnik po izgotovleniyu otlivok iz vysokoprochnogo chuguna. By A.A.Gorshkov i dr. Pod obshchei red. A.A.Gorshkova. Moskva, Mashgiz, 1961. 297 p. (MIRA 15:2)

1. Chlen-korrespondent Akademii nauk Ukrainskoy SSR (for Gorshkov).

(Iron founding)

GORSHKOV, A.A.

Treatment of liquid cast iron for the formation of spheroidal
graphite. Nauch. trudy Inst. lit. proizv. AN URSR no.10:5-27
'61. (MIRA 15:6)

(Cast iron--Metallurgy)

GORSHKOV, A.A.; VOLOSHCHENKO, M.V.

Results of investigating cast iron treated with naphthalene.
Nauch. trudy Inst. lit. proizv. AN URSR no.10:46-50 '61.

(Cast iron--Metallography) (Naphthalene) (MIRA 15:6)

GORSHKOV, A.A.; DUBROV, V.V.; PROZHOVA, K.K.

Rapid control of cast iron with spheroidal graphite. Nauch.
trudy Inst. lit. proizv. AN URSR no.10:60-64 '61. (MIRA 15:6)
(Cast iron--Testing)

GORSHKOV, A.A.; DENISEVICH, V.Ye.

Chemical stability of cast iron with spheroidal graphite in
corrosive media. Part 2. Nauch. trudy Inst. lit. proizv. AN
URSR no.10:126-132 '61. (MIRA 15:6)
(Cast iron--Corrosion)

GORSHKOV, A.A., otv. red.; PADERNO, Yu.B., red.; MATVEYCHUK, A.A.,
tekhn. red.

[Structure and properties of cast alloys] Struktura i svoistva
litykh splavov. Kiev, Izd-vo Akad. nauk USSR. Vol.1. 1962.
(MIRA 15:7)
152 p.

1. Akademiya nauk USSR, Kiev. Instytut lyvarnoho vyrobnytstva.
2. Chlen-korrespondent Akademii nauk USSR (for Gorshkov).
(Founding) (Steel castings)

ALEKSEYEV, S.A.; BALABIN, V.V.; BARBASHIN, N.N.; ~~GORSHKOV, A.A.~~;
ZHAROV, N.T.; MARIYENBAKH, L.M.; RUBTSOV, N.N., doktor tekhn.
nauk, prof.[deceased]; SERGEYEV, V.S.; SOSNENKO, M.N.; FROLOV,
V.V.; KONSTANTINOV, L.S., kand. tekhn. nauk, red.; CHERNYAK,
O.V., red. izd-va; UVAROVA, A.F., tekhn. red.; TIKHANOV, A.Ya.,
tekhn. red.

[Fondryman's handbook; general information on founding] Spravochnik
nik liteishchika; obshchie svedeniia po lit'iu. [By] S.A. Alekseyev
i dr. Pod obshchei red. N.N. Rubtsova. Moskva, Mashgiz, 1962.
524 p. (MIRA 16:1)

(Founding—Handbooks, manuals, etc.)

CTRYUCHENKO, A.A.; GORSHKOV, A.A.

Use of the Cherkassy Province palygorskite clay in molding
mixtures. Lit.proizv. no.2:4-7 F '62. (MIRA 15:2)
(Cherkassy Province--Palygorskite)
(Sand, Foundry)

S/128/62/000/008/001/003
A004/A127

AUTHORS: Gorshkov, A.A., Polishchuk, V.P., Tsin, M.R.

TITLE: Use of single-phase electromagnetic pumps in foundry practice

PERIODICAL: Liteynoye proizvodstvo, no. 8, 1962, 9

TEXT: In foundry practice, two types of induction pumps show the greatest prospects - three-phase and single-phase pumps. Three-phase pumps are more expediently employed in the continuous pumping of considerable metal quantities over a long distance, while single-phase pumps are more suitable for the intermittent pumping of smaller amounts of metal at low pressure. The metal filling a ring-shaped crucible constitutes the second winding of a single-phase transformer with the primary winding under the crucible. When the primary winding is switched on, currents are induced in the liquid metal that are interacting with the magnetic field of the transformer, while forces are originating in the metal striving for moving it upwards relative to the coil. During long-time standstills the pump can operate on a reduced voltage which keeps the metal in a liquid state. Single-phase pumps are applicable for proportioning and feeding the metal into pressure casting, ✓

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A004/A127

Use of single-phase.....

chill-mold, and centrifugal casting machines. A brief description of the functioning of the proportioning pump in foundry practice is given and it is pointed out that the stresses originating in the metal may be used not only for filling the molds with metal, but also for producing pressure on the metal. There are 3 figures. ✓

Card 2/2

KLIBUS, V. V.; GORSHKOV, A. A.

Materials for basic cupola lining. Lit. proizv. no.10:13-15
0 '62. (MIRA 15:10)

(Cupola furnaces) (Refractory materials)

GORSHKOV, A.A.

Inoculators used in the production of nodular cast iron. Nauch.
trudy Inst. lit. proizv. AN URSS 11:5-14 '62. (MIRA 15:9)
(Cast iron—Metallurgy)

GORSHKOV, A.A.; KLIBUS, V.V.

Cast iron saturation by chromium during its melting in cupolas
with a chrome-magnesite lining. Nauch. trudy Inst. lit. proizv.
AN URSR 11:26-32 '62. (MIRA 15:9)
(Cast iron--Analysis) (Chromium--Analysis)

GORSHKOV, A.A.; LUZAN, P.P.

Effect of pig iron properties on the quality of nodular cast
iron. Nauch. trudy Inst. lit. proizv. AN URSR 11:33-44 '62.
(MIRA 15:9)

(Cast iron—Metallurgy)

GORSHKOV, A.A.; DENISEVICH, V.Ye.

Corrosion of cast iron pipe. Nauch. trudy Inst. lit. proizv.
AN URSR 11:80-84 '62. (MIRA 15:9)
(Pipe, Cast iron--Corrosion)

KOROTKOV, Veniamin Grigor'yevich; GORSHKOV, A.A., retsenzent; ZERNOVA, N.A., inzh., retsenzent; CHURMANOVA, V.V., tekhn. red.

[Refinement of cast aluminum alloys] Rafinirovanie liteinykh aluminievykh splavov. Moskva, Mashgiz, 1963. 126 p.
(MIRA 16:4)

1. Chlen-korrespondent Akademii nauk Ukr. SSR (for Gorchkov).
(Aluminum alloys)

OVCHARENKO, F.D., akademik, doktor khim.nauk, orv.red.; GORSHKOV, A.A., red.;
USENKO, I.S., doktor geol.-min. nauk, red.; DAVYDOV,
G.M., kand. ekon. nauk, red.; KHAN, B.Kh., kand. tekhn.nauk, red.;
KORABLIN, V.P., inzh., red.; SHTUL'MAN, I.F., red.; DAKHNO, Yu.B., tekhn.
red.
[Stone casting] Problemy kamennogo lit'ia. Kiev, Izd-vo
AN USSR, 1963. 226 p. (MIRA 17:2)

1. Akademiya nauk URSR, Kiev. Rada po vyvchenniu produktyv-
nykh syl URSR. 2. Akademiya nauk Ukr.SSR (for Ovcharenko).
3. Chlen-korrespondent AN Ukr.SSR (for Gorshkov). 4. Sovet po
izucheniyu proizvoditel'nykh sil Ukr.SSR (for Davydov).

LUZAN, P.P., inzh.; GORSHKOV, A.A., doktor tekhn. nauk

Characteristics of natural properties of pig irons used for
preparing high-strength alloys. Mashinostroenie no.3:37-39
My-Je '63. (MIRA 16:7)

(Cast iron—Testing)

GORSHKOV, Andrey Andreyevich; ZATULOVEKIY, Sergey Semenovich,
inzh.; RUDEKO, Nikolay Grigor'yeovich, inzh.; VOLOSECHENKO,
Mikhail Vasil'yevich, kand. tekhn. nauk; KLIBUS, Vladimir
Vasil'yevich, inzh.; LUZAN, Petr Petrovich, kand. tekhn.
nauk; KRAMARENKO, Oksana Yur'yevna, kand. tekhn. nauk;
KULIKOVSKAYA, Ol'ga Varfolomeyevna, inzh.; FILATOVA, T.A.,
red.

[Cast iron with spheroidal graphite treated by rare-earth
modifiers; problems of theory and practice] Chugun s sharo-
vidnym grafitom, obrabotanniy redkozemel'nymi modifikatora-
mi; voprosy teorii i praktiki. Kiev, Naukova dumka, 1964.
161 p. (MIRA 17:11)

1. Akademiya nauk URSS, Kiev. Institut problem lit'ia.
2. Chlen-korrespondent AN Ukr.SSR (for Gorshkov).

GORSHKOV, A.A., doktor tekhn. nauk, prof.; VOLOSHCHENKO, M.V.,
kand. tekhn. nauk. Primal uchastiye YUDIN, Ye.I., inzh.;
STEPIN, P.I., kand. tekhn. nauk, retsenzent.

[Cast crankshafts] Litye kolenchatye valy. Moskva, Izd-vo
"Mashinostroenie," 1964. 194 p. (MIRA 17:5)

LEVCHENKO, Yu.N. [Levchenko, Iu.M.]; KHOKHOL'KOV, V.N. [Khokhol'kov, V.M.];
GORSHKOV, A.A. [Horshkov, A.A.]

Solution of magnesium in iron and iron-carbon alloys. Dop. AN URSR no.
12:1602-1606 '63. (MIRA 17:9)

1. Institut liteynogo proizvodstva AN UkrSSR. 2. Chlen-korrespondent
AN UkrSSR (for Gorshkov).

GORSHKOV, A.A.; VRUBLEVSKIY, V.I.; KRYZHANOVSKIY, O.M.; KASHIRIN, Yu.P.;
LUZAN, P.P.

Preparation of the cupola charge for conditions of mechanization
and automation. Lit. proizv. no.4:48, 3 of cover Ap '64.
(MIRA 18:7)

GORSHKOV, A.A.; OMEL'YANENKO, B.I.; SONYUSHKIN, Ye.P.

Studying the conditions of vein-disseminated uranium ores of
hydrothermal origin. Geol. rud. mestorozh. 6 no.1:33-50 Ja-F
'64. (MIRA 17:11)

GORSHKOV, A.A.

Formation of nodular inclusions of graphite during the solidifi-
cation of metals and alloys. Lit.proizv. no.7:46-48 J1 '64.
(MIRA 1844)

BELYAYEV, M.V., inzh.; GORSHKOV, A.F., inzh.

Mathematical model of a magnetic amplifier. Izv. vys. ucheb. zav.;
gor. zhur. 6 no.3:150-154 '63. (MIRA 16:10)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.

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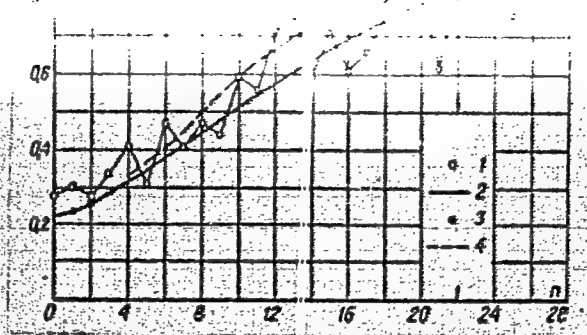
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5. The source has provided information on the [redacted]
6. The source has provided information on the [redacted]

ENCLOSURE

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... points used for
... of the parameters of
the memory domain model; 4 — curve
of the probability of the termination of
storage cycles obtained by calculating
the memory domain. (Memory domain
is defined as the totality of biophysical
formations cooperating in the storage
of the given information complex.)



Card 3/3

L 20414-66 ENT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AP6009909

SOURCE CODE: UR/0413/66/000/004/0106/0106

INVENTOR: Gorshkov, A. F.; Kirpichnikov, V. M.; Siunov, M. N.

ORG: none

TITLE: Buffer memory circuit. Class 42, No. 179095

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 106

TOPIC TAGS: computer component, buffer memory, storage device, magnetic core storage, computer memory

ABSTRACT: The Author Certificate introduces a ferrite-core buffer memory utilizing

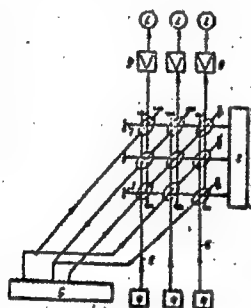


Fig. 1. Buffer memory circuit

- 1 - Horizontal recording buses;
- 2 - generators for selection of horizontal buses;
- 3 - vertical write buses;
- 4 - generators for selection of vertical buses;
- 5 - generators for diagonal read buses;
- 6 - amplifiers;
- 7 - recording units.

Card 1/2

UDC: 681.142.523.8.07

L 20414-66

ACC NR: AP6009909

square matrices. Matrix configuration is shown in Fig. 1. Orig. art. has:
1 figure.

[DW]

SUB CODE: 09/ SUBM DATE: 22Jun64/ ATD PRESS: 4222

Card

2/2

BK

L 00809-67 EMT(d)/ENP(1) IJP(c) BB/GG
ACC NR: AP6015577 (N) SOURCE CODE: UR/0146/66/009/002/0074/0078

AUTHOR: Kirpichnikov, V. M.; Gorshkov, A. F.; Siunov, M. N. 45

ORG: Ural Polytechnic Institute im. S. M. Kirov (Ural'skiy politekhnicheskii institut) 13

TITLE: Model of high-speed recorder unit using flash lamps

SOURCE: IVUZ. Priborostroyeniye, v. 9, no. 2, 1966, 74-78

TOPIC TAGS: computer, digital computer, computer component

ABSTRACT: An experimental recorder unit¹⁶ intended for receiving alphanumerical information from digital computer is described; the information can be recorded on a photo film or a xerox paper. A step register logically converts information and makes up the lines on the film which enhances the speed of operation. A principal circuit of the recorder unit is briefly explained. IFK-120 flash lamps operating with a very low duty factor help in transmitting characters to the photo film; writing density, 2000 lines per m. The writing rate of the new experimental unit is claimed to exceed that of the regular "Ural-2" computer by 11 times; it can be varied within 1--13200 lines per min. Orig. art. has: 2 figures and 5 formulas.

SUB CODE: 09 / SUBM DATE: 23Feb65 / ORIG REF: 004

Card 1/1 vlr

UDC: 681.142.5

GORSHKOV, A. G.

Steam Boilers

Repairing damage to welded tube joints of high pressure boilers. Rab. energ. 3,
No. 2, 1953.

Monthly List of Russian Accessions, Library of Congress
June 1953. UNCL.

GORSHKOV, A.I.

Follow the example of progressive enterprises in cutting production costs. Tekst. prom. 19 no.7:68-70 JI '59. (MIRA 12:11)

1. Nachal'nik planovo-ekonomicheskogo otдела upravleniya khlopchatobumazhnoy i shelkovoy promyshlennosti Vladimirovskogo sovnarkhosa.

(Textile industry--Costs)

GORSHKOV, A.I., insh.

~~Pressmold with case-type dies. Mash.Bel. no.5:196 '58.~~
(MIRA 12:11)

(Dies (Metalworking))

GORSHKOV, A.I.

My experience in the operation of a tie tamping machine. Put'1
put.khoz. 5 no.5:24 My '61. (MIRA 14:6)

1. Mashinist shpalopedbivechnoy mashiny PMS-58, st. Saseva,
Moskovskoy dorogi.
(Railroads--Equipment and supplies)

GORSHKOV, A.I.

Vladimir Province textile workers are reaching the goals set for
1965. Tekst.prom. 21 no.4:90 Ap '61. (MIRA 14:7)

1. Nachal'nik planovo-ekonomicheskogo otдела Upravleniya
khlopchatobumazhnoy i shelkovoy promyshlennosti Vladimirovskogo
sovnarkhoza.

(Vladimir Province—Textile industry)

GORSHKOV, A.I.; NIKISHOV, S.I., red.

[Workers of Ivanovo and Vladimir Provinces during the years of the Great Patriotic War, 1941-1945] Trudiaschiesia Ivanovskoi i Vladimirovskoi oblastei v gody Velikoi Otechestvennoi Voiny, 1941-1945 gg. Ivanovo, Ivanovskoe knizhnoe izd-vo, 1959. 721 p. (MIRA 14:4)

1. Kommunisticheskaya partiya Sovetskogo Soyuza. Ivanovskiy oblastnoy komitet. Arkhiv.
(Ivanovo Province--World War, 1939-1945--Economic aspects)
(Vladimir Province--World War, 1939-1945--Economic aspects)

DORFMAN, M.D.; GORSHKOV, A.I.; TELESHOVA, R.L.

Celadonite from the Khibiny Mountains. Trudy Min.muz. no.16:225-232
'65. (MIRA 18:8)

GORSHKOV, A. I.

PA 220164

USSR/Electricity - Electrical Heating

Apr 52

*no
copy*
"Electrical Contact Heating by Power-Frequency
Currents"

"Elektrichestvo" No 4, p 88

Abstract of a paper written by A. I. Gorshkov and
originally published in "Avtomobil'naya i Trak-
tornaya Promyshlennost'," No 10, 1951. Details
savings obtained at the Vladimir Tractor Plant
imeni Zhdanov through the use of the elec contact
method of heating parts.

228T64

✓ Electron-microscopic investigation of minerals. O. B. -
Ortsachenko and A. I. Chernykh. *Mineral. Obshchestvo* 1984, 10, 1-10. The authors describe the
optimum electron-microscopic conditions for the study of
dispersed minerals in ultra-thin sections. The authors present
micrographs of kaolinite, talc, pyrophyllite, montmorillonite,
ferromolybdate, scorodite, and other minerals. Particular emphasis is given to the features of
clay minerals, but also for many other minerals.

GRITSAYENKO, G.S.; GORSHEV, A.I.; FROLOVA, K.Ye.

Studying minerals by the replica method. Zap. Vses. min. ob-va 87
no.3:269-276 '58. (MIRA 11:10)
(Electron microscopy)

GRITSAYENKO, G.S.; GORSHKOV, A.I.; PROLOVA, K.Ye.

Using coal and cellulose-coal replicas for studying fractured
surfaces of mineral aggregates. Zap.Vses.min.ob-va 89 no.2:
152-159 '60. (MIRA 13:7)

1. Deystvitel'nyy chlen Vsesoyuznogo mineralogicheskogo obshchestva
(for Gritsayenko).

(Mineral aggregates)

(Electron microscopy)

GRITSAYENKO, G.S.; RUDNITSKAYA, Ye.S.; GORSHKOV, A.I.; KUSHNIR, Yu.M.,
otv. red.; MERGASOV, G.G., red. Izd-va; SHEVCHENKO, G.N., tekhn.
red.

[Electron microscopy of minerals; equipment, research methods,
and preparation techniques] Elektronnaia mikroskopiia minera-
lov; apparatura, metody issledovaniia i tekhnika prepariro-
vaniia. Moskva, Izd-vo Akad.nauk SSSR, 1961. 131 p.

(MIRA 15:2)

(Minerals)

(Electron microscopy)

GRITSAYENKO, G.S.; GORSHKOV, A.I.

Enveloping replicas from separate particles. Zap.Vses.min.ob-va
90 no.3:266-269 '61. (MIRA 14:10)
(Electron microscopy)

30200

S/135/62/000/006/002/014
A006/A106

1.2300
AUTHORS: Gorshkov, A. I., Engineer, Tret'yakov, F. Ye., Candidate of Technical Sciences

TITLE: The effect of operational parameters in argon-arc welding BT -14 (VT-14) alloy upon pore formation

PERIODICAL: Svarochnoye proizvodstvo, no. 6, 1962, 4 - 5

TEXT: The authors studied the effect of the welding speed, linear energy and voltage of the arc, and of the magnitude of gap, upon pore formation in the weld metal during automatic argon-arc welding of VT-14 titanium alloy plates, 2 - 3 mm thick. It was found that the basic cause of porosity is the presence of gases in the metal to be welded. With greater welding speed, arc voltage and gaps between the edges in automatic argon-arc welding without filler metal, porosity decreases in the weld metal: the thicker the metal, the fewer pores are formed. At a higher linear energy the amount of pores increases. Porosity in the weld metal increases if there is hydrogen in the shielding zone of the arc. In all the cases investigated, the pores had a round shape which indicates high

Card 1/2

The effect of operational...

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A006/A106

gas pressure inside the pores. The pores are located in the unfused edges, in case of incomplete fusion of the welded edges. In the case of complete fusion, they are located in the weld-adjacent zone. It was found that of several methods tested, such as automatic and manual argon-arc welding, and atom-hydrogen welding, automatic argon-arc welding without filler metal produced welds with least amounts of pores. There are 3 figures and 1 table.

Card 2/2

AID Nr. 990-1 14 June

GORSHKOV, A. I.

POROSITY IN TI-ALLOY WELDS (USSR)

Tret'yakov, F. Ye., and A. I. Gorshkov, Svarochnoye proizvodstvo, no. 4, Apr 1963, 24-27. S/135/63/000/004/007/012

The effect of various factors on the porosity in Ti alloy welds has been evaluated. Hydrogen contained in the base metal and filler wire was found to be the main cause of porosity. Pickling of the base metal increases somewhat the amount of hydrogen absorbed and therefore promotes porosity. The determinant effect of hydrogen in filler metal can be suppressed by a suitable alloying. For instance, welds made with OT4-1 filler [1.0-2.5% Al, 0.8-2.0% Mn] having a hydrogen content of 0.037% contained 3.5 times more pores than welds made with BT-15 filler [3% Al, 8% Mo, 11% Cr] having a hydrogen content only slightly lower (0.031%). The 48-T2 filler [composition not given], containing only 0.009% hydrogen, produced twice as much porosity as BT-15. With increasing rate of welding speed the amount of porosity first increased, reaching a maximum of 65 to 85 pores per 100 mm length at 12 m/hr, and then dropped sharply, to approximately 4 to 14 pores

Card 1/2